

**ROMAN ROAD AERIAL PHOTOGRAPH MAPPING PROGRAMME** 1996/97.

Project grant-aided by RCAHMW

Undertaken by K Murphy, Archaeolog Cambria Archaeology

*Aims and Objectives*

The aim of this programme was to digitally map all the available oblique aerial photographic evidence for Roman roads in the counties of Carmarthenshire, Pembrokeshire and Ceredigion. This evidence was supplemented by reference to commercially-flown vertical photographs, where these were readily available. From the mapped evidence written records were to be created in a format compatible for integration with the regional Sites and Monuments Record and with the Extended National database.

*Methodology*

The basic methodology for aerial photography mapping is set out in RCAHMW's *Air Photo Mapping and Record Creation Methodology - Extended Notes* (1996). The comments below only refer to areas where the methodology used in the Roman road project differs from that suggested by RCAHMW.

To ensure that a base-map was available on which to plot the photographs, relevant sections of the OS 2nd Edition 1:10560 were digitised. For each paper map four NGR co-ordinates were calculated at points preferably as close to the corners of the map as possible. Relevant sections of each map were then digitised, resulting in a strip map following the lines of the Roman roads. Clearly this map and any other data digitised on it was tied in to the National Grid. The photographs were then digitised onto this base-map. The digitising was carried-out in AutoCad. A DXF file was then exported, and imported into FastMap. In FastMap gridlines were established and the map split into OS quarter sheets. New map files were then created for each quarter sheet.

Because many of the colour slides of the Roman road show evidence not visible on black and white prints it was decided to formulate methods of digitising from slides. Equipment requirements consist of a large, stable, white digitiser board capable of being positioned vertically, and a good quality slide projector. The slides were simply projected onto the board and digitised.

*Snags and Problems*

Oblique aerial photographs which show the clearest archaeological detail are often those taken nearest the ground. Unfortunately, for digitising, there are frequently insufficient 'anchor' points on these photographs to achieve good plots. It was necessary, in some instances, to use more distant views for the digitising whilst referring to the close-in shots for detail. Where no distant views were available close-in views were digitised. This was noted on the final drawings if it was considered that this had led to a loss of accuracy.

The digitising of old OS maps to provide a map-base is a time-consuming process. The availability of OS digital map data would have released more time in the project for plotting photographs and creating records.

The major problem in the project and one that led to a considerable loss of time was setting-up and dealing with computer software. No problems were encountered with AutoCad or FastCad, but the data packages FastMap and FoxPro proved to be troublesome. Fastmap in particular has many teething problems, but it is anticipated that as it is developed, and as users become more familiar with it, then these will disappear.

### *Results*

PRN 14277 The road west of Carmarthen: the course of this road, approximately from St Clears to the Eastern Cleddau has been previously examined (aerial photographs, field visits and excavation) and its course is well established. The current work extended to line west to Wiston, Pembrokeshire and east to c. 5km west of Carmarthen. Generally, the line of the road is good, and where no hard evidence for it exists its course can be predicted.

Carmarthen to Llandovery: Examination of aerial photographs in previous years had established the general line of this road, though with wide gaps between segments. The current work confirmed much of this earlier work, filled in some gaps, and produced new lines in area where none previously existed. The one big area for which no clear line has yet been identified is north of Llandeilo - this is a key section as there is a long-held suspicion that there is a fort at or near Llandeilo.

Carmarthen to Lampeter and Llanio: North of Carmarthen the line of this road is poorly established with only a few isolated segments with large gaps between. As the road approaches Llanybyther its line becomes clearer and it is possible to project with confidence its course between closely-spaced segments from Llanybyther to Llanio. To the north of Llanybyther the road crosses to the west bank of the Teifi and heads towards Lampeter. To the north of Lampeter the road re-crosses the Teifi, then following its junction with the road from Pumpsaint from the south it turns north to the fort at Llanio and crosses the river again. The reason for the river crossings are unclear - perhaps the road is heading for a fort or other installation in the vicinity of Lampeter.

Llandovery to Pumpsaint and Llanio: Recent research and the current mapping programme have established the course of the road from Llandovery to Pumpsaint. There are some gaps in the line, particularly as the road approaches Pumpsaint and towards its junction with the Carmarthen-Llanio road. Generally, where no hard evidence exists, the line of the road can be predicted. Two points of interest were noted during the plotting. 5Km north of Llandovery the road turns sharply to the west, but a further segment (33992) has been recorded maintaining the northern line - is this a previous unknown road? To the south of this turn a parchmark of a penannular bank close to the road with its entrance facing the road is evident (33991). Possibly a ring barrow, but could it be a Roman military installation?

Llandovery to the NE: A good line is evident until the road approaches the Carmarthenshire border. Here the road seems to be running along a high ridge, but the evidence for this is not firm.

Llanio - Trawscoed: A modern road follows the course of the Roman road for much of this section. However, a new line for the road as it approaches Trawscoed has been established.

#### *Future Research*

Aerial photography: continued flying should fill in the gaps between road segments on known lines. There are, however, several problem areas:

- a. The destination of the road west of Carmarthen is not known. This should be a research priority. Initially examination of vertical aerial photographs in particular the colour survey taken in the dry summer of 1983(?) may resolve the problem.
- b. The course of the road to the north of Trawscoed fort is unknown; this needs to be resolved.
- c. Roads to the south of Carmarthen, Llandeilo and Llandovery. At moment there are no convincing lines for these roads. A start may be an examination of the road south out of Llandeilo - here hedgelines seem to suggest the road line for several kilometres.
- d. There is the possibility, see above, that the road from Llandovery to Pumsaint north of Llandovery extends further north than is presently known. This needs to be investigated.

Fieldwork; it is clear that parchmark/cropmark evidence for Roman roads detected on aerial photographs is often manifest on the ground in the form of earthworks. This was certainly the case of the Roman road west of Carmarthen. In order to better characterise road segments, and to, perhaps, detect further sections of road, field visits would be useful. During field visits evidence not visible on aerial photographs such as bridge abutments at river crossings and road sections exposed by river-bank erosion could be search for and recorded.